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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/771,641	02/04/2004	Richard E. Raby	59525US002	3710
32692 7590 09/17/2008 3M INNOVATIVE PROPERTIES COMPANY PO BOX 33427 ST. PAUL, MN 55133-3427				
EXAMINER SRIVASTAVA, TARUN K				
ART UNIT		PAPER NUMBER		
3732				
NOTIFICATION DATE		DELIVERY MODE		
09/17/2008		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

LegalUSDocketing@mmm.com  
LegalDocketing@mmm.com

## Office Action Summary

**Application No.**

10/771,641

**Applicant(s)**

RABY ET AL.

**Examiner**

TARUN K. SRIVASTAVA

**Art Unit**

3732

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04/10/2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-86 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-86 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/ICE)  
Paper No(s)/Mail Date 02/25/08
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Specification***

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

2. The abstract of the disclosure is objected to because it contains legal phraseology, the term 'comprises.' Correction is required. See MPEP § 608.01(b).

### ***Drawings***

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the button, archwire, sheath, and buccal tubes of claims 38 and 74 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure

number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 38 and 74 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a bracket, does not reasonably provide enablement for a sheath, a button or an arch wire. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims. The specification does not describe the planar guide(s) rendered for these appliances and how the planar guide(s) aid the practitioner in placement of such appliances.
6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1 – 38, 44 – 50, 64, 66, 78, 80, and 83 – 86 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear as to what a midsagittal plane, a midlateral plane, a midfrontal plane, and an occlusal-gingival axis of the orthodontic appliance are.

***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1-4, 10, 12, 13, 18, 19, 31-35, 37, 38, 39-43, 49, 51-55, 73-78, and 80-82 are rejected under 35 U.S.C. 102(b) as being anticipated by Chapoulaud et al. (2002/0028417).

Chapoulaud et al. disclose a method, system and medium comprising: displaying a digital representation of a tooth in a dental arch within a three – dimensional environment, displaying the planar guide within the 3D environment as a visual aid to a practitioner in the placement of an orthodontic appliance relative to the dental arch, while displaying the distal representation of the tooth of the dental arch, wherein

displaying the two dimensional planar guide comprises rendering the guide at a location that is based on a position of the appliance in the 3D environment (figures 5), [0090]. In addition, with regard to amended claims 4,43, and 77, an operator 28 inputs data with respect to the tooth in the 3 D environment (paragraph 57) and the planar guide receives input from the practitioner moving the placement of the orthodontic appliance with respect to the tooth in the 3 – D environment (paragraphs 57 – 58).

With respect to amended claims 1 and 75, Chapoulaud further discloses a display for, or a programmable processor to display, the two dimensional planar guide, which is inherent from figures 1 – 2 and figures 5, since the calculations of how to align the teeth positions could not be determined unless the planar guide was displayed relative to the teeth. Regarding amended claims 37 and 73, the same reasoning of inherency applies, as the purpose of the contour lines of the planar guide would be to indicate distance between the guide and the patient's teeth, as disclosed in paragraph 90 of Chapoulaud. The planar guide is within the 3D environment relative to a coordinate system. The planar guides are displayed as semi-transparent two-dimensional plane within the three-dimensional environment comprising at least two lines. Chapoulaud et al. show appliance adjusted by the practitioner on a computer so as to change the bracket relative to the tooth. Chapoulaud et al. show storing data that describes attributes for orthodontic appliances that include parameters such as torque angles.

Stored three-dimensional data of the teeth would include dimensions and distances of teeth. Chapoulaud et al. show displaying reference markers of points or tic

marks at discrete intervals. A parallel object can be placed in the three-dimensional environment such that it is a constant distance to the displayed contour lines on the guide. Chapoulaud et al. show orthodontic appliance of a bracket. Chapoulaud et al. show controls provided on display of a computer for selecting various views or actuating various calculations or commands. Chapoulaud et al. show orthogonal x,y,z coordinates. Chapoulaud et al. show the computing device coupled via network to database (figure 1).

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. Claims 5-9, 11, 14-17, 20-28, 36, 44-48, 50, 56-64, 67-72 and 83 – 86 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chapoulaud et al.

Chapoulaud et al. disclose a method and system that shows the limitations as described above; however, they do not show planar guides representing guides other

than what is understood to be midsagittal planar guide of a bracket. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the planar guides represent other visual locations of a bracket relative to a tooth. Chapoulaud et al. disclose a method and system that shows the limitations as described above; however, they do not show planar guides having different colors. Chapoulaud et al. teaches display of the three-dimensional teeth with each tooth in a different color. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method and system to have the planar guides in different colors in order to be able to identify them by color in view of Chapoulaud et al. Chapoulaud et al. show adjusting the color and transparency as noted by adjustments in brightness and shading disclosed. It would have been obvious to one of ordinary skill in the art to store planar guide data of attributes received input from the user. It would have been obvious to one of ordinary skill in the art to size or scale the guides with respect to the displayed tooth or teeth. It would have been an obvious matter of choice to one of ordinary skill in the art to visually enclose a volume of two planar guides. It would have been obvious to one of ordinary skill in the art as to attributes of the bracket including a shear angle.

Regarding claims 85 and 86, Chapoulaud discloses the invention as claimed as discussed above, but does not teach penetrating the occlusal surface of the digital representation of the tooth or penetrating the distal edge of the digital representation of the tooth (rather he teaches running parallel). However, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify



Chapoulaud's method by penetrating, rather than running parallel to, the occlusal and distal surfaces, in order to get a better picture of this part of the patient's anatomy.

13. Claims 29, 30, 65, 66, and 79 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chapoulaud et al. in view of Kopelman et al. (2003014509).

Chapoulaud et al. disclose a method and system that shows the limitations as described above; however, they do not show data of rules for orthodontic appliance. Kopelman et al. teach a method and system comprising data 110 of rules for applying the orthodontic appliance. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method and system to comprise data of rules in order to obtain a desired outcome of positioning and orientation in view of Kopelman et al.

### ***Response to Arguments***

14. Applicant's arguments filed April 10, 2008 have been fully considered but they are not persuasive.

It is noted that the IEA does not make patentability determinations. Where applicant acts as his or her own lexicographer to specifically define a term of a claim contrary to its ordinary meaning, the written description must clearly redefine the claim term and set forth the uncommon definition so as to put one reasonably skilled in the art on notice that the applicant intended to so redefine that claim term. *Process Control Corp. v. HydReclaim Corp.*, 190 F.3d 1350, 1357, 52 USPQ2d 1029, 1033 (Fed. Cir. 1999). Objects such as orthodontic appliances are not defined in terms of terminology such as midsagittal as the dental arch may be.

"Midsagittal" is not used in dentistry to mean dividing a multitude of objects with respect to dental arch each into left and right halves. Applicant argues by applying the terminology with respect to an orthodontic bracket which is only shown to be rectangular, and does not apply it to other types of orthodontic appliances such as a sheath. It is believed the prior art shows method, system and computer medium as claimed to visually aid a user in placement of an orthodontic bracket in 3D environment, the displayed images include what can be called planar guides.

Addressing applicant's arguments regarding the statutory USC 102 and USC 103 rejections, examiner respectfully disagrees that Chapoulaud fails to teach or suggest displaying the planar guide and the digital representation of the tooth separately. As is best understood by examiner, it can be seen from figures 1 – 2 and figure 5 that it would be impossible to locate the planar guide with respect to the teeth if the two were not displayed independently. In addition, it is discussed in Chapoulaud that the planar guide must be placed relative to the teeth, (and this is also being argued by applicant) thus it can be deduced that in order to place an object relative to another object, the orientation of both objects must be independently known. In addition, applicant's arguments regarding specifically the proximal placement of the digital representation of the tooth are respectfully considered moot by examiner, because since the basic step is taught by Chapoulaud, any surface can be deemed 'proximal.' Finally, with respect to applicant's argument that Chapoulaud does not teach that the engine renders the planar guide at a location based on the movement of the position of the orthodontic appliance,

this again is an inherent component of relatively determining the orientation of an object, as discussed above.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **TARUN K. SRIVASTAVA** whose telephone number is (571)270-3769. The examiner can normally be reached on M - F 5:30 - 2:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cris Rodriguez can be reached on 571-272-4964. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Respectfully,  
TKS  
/T. K. S./  
Examiner, Art Unit 3732  
08/25/08

/Cris L. Rodriguez/  
Supervisory Patent Examiner, Art Unit 3732